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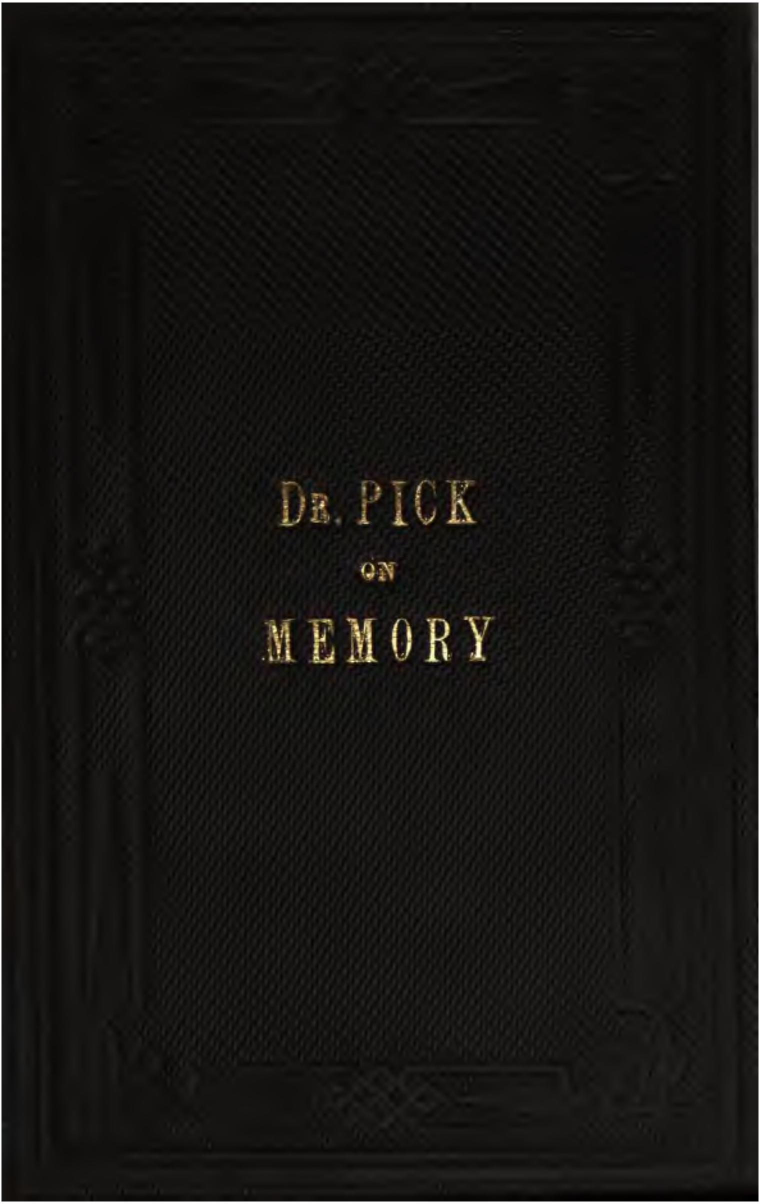

DR. PICK

ON

MEMORY

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ON

MEMORY

AND THE

RATIONAL MEANS OF IMPROVING IT.

BIBLIOTHECA BODLEIANA
DOMINUS ILLUMINATIO MEA

BY

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LONDON:
TRÜBNER & CO., 60, PATERNOSTER ROW.

1861.

LONDON:
PRINTED BY WERTHEIMER AND CO.,
CIRCUS PLACE, FINSBURY CIRCUS.

BIBLIOTHECA · BODLEIANA ·

TO

SIR CULLING E. EARDLEY, BART.,

THIS BOOK IS DEDICATED

AS A

TOKEN OF GRATITUDE AND VENERATION

BY

THE AUTHOR.

PREFACE.

THIS little book is intended to show what has been done hitherto in Mnemonics, and to suggest new means for improving the Memory. The artificial modes of aiding the Memory hitherto applied have been amply tested, yet have always proved a failure, the reason of which is that they were based on a misapprehension of the nature of the mind. I have therefore tried to develop in these pages, first, the true nature of that faculty of the mind which is to be the subject of our special attention. I have further endeavoured to show how those laws which regulate recollection, or in other words, the reasons why we retain certain things more easily than others, can be used to facilitate learning by heart without recurring to artificial means, and without cramming the mind with things difficult to retain, and quite foreign to the ideas they are meant to inculcate. I give, also, a few instances of the practical application of those principles. Their further adaptation to all branches of knowledge, and especially to those of general education, are reserved for separate publications. I have taught them at the leading Universities in Germany, at the highest schools in France, and continue to do so, both publicly and in schools, in this country; with what success the kind reader will see in the papers annexed to this book. I beg to say, in conclusion, that I shall have great pleasure in receiving from those who have attended my lectures any suggestions for further applications of my method.

8, *Old Quebec Street, Portman Square.*

HISTORY OF MNEMONICS.

THE Greek poet, Simonides (B.C. 470), is generally believed to be the inventor of Mnemonics. His discovery of the art is thus related by Cicero :

" A man named Skopas, at Kranon, in Thessalia, once gave a grand dinner in honour of a victorious gladiator. Amongst the guests was the poet Simonides, who, during the repast, recited some verses he had composed in honour of the hero of the feast. After his recitation, he was called outside, and had scarcely left the room, when the ceiling fell in, crushing Skopas and all his guests. When the relatives of the killed came to bury the remains, they found them so smashed and disfigured, that they could not distinguish one body from another. It happened, however, that Simonides had observed the place which each person had occupied; and on looking at the several places, he was able to identify all the bodies. This led him to believe that nothing could better assist the memory than to retain in the mind certain fixed places, and therein to deposit, with the assistance of the imagination, whatever we intend to keep in our memory."

Though Simonides seems to have formed a complete artificial system on this principle, and even to have taught his system, no particulars have come down to us, either about his own system, or about those of other writers on the subject among the Greeks. But the Romans have left detailed reports on Mnemonics, which undoubtedly were taken from Greek sources. The most remarkable of these are to be found in "Rhetor. ad Herrenium," iii., 16—24, in "Cicero de Oratore," lib. ii., cap. 88, "Quintilianus Instit. Orat.," lib. xi., cap. 2. The following passage out of the very minute treatise of Quintilian will give a correct idea of the Mnemonics of the ancients:

"This is the way to make the art of Mnemonics practical. You choose a very spacious and diversely arranged place—a large house, for instance, divided into several apartments. You impress on the mind with care whatever is remarkable in it; so that the mind may run through all the parts without hesitation or delay; for the essential is not to hesitate before the objects, as remembrances destined to help other remembrances should be more than sure. Moreover, for recalling to mind what you have written or simply meditated, you help yourself with any sign borrowed from the matter you have to treat of—if the object should be one of war, navigation, or the like; or with some word, for a word suffices to refresh the memory, as soon as it begins to fail. If the object is navigation, the sign will be an anchor; if it is war, it will be a weapon. Then you proceed as follows: you place the first idea in the hall, the second in the parlour, and so on with the rest, going over the windows, the chambers, to the statues and similar objects. This done, if the object is to apply that proceeding to the memory, you look over every apartment, beginning with the first, and recalling at every picture the idea which was confided to it; so that, howsoever numerous the things may be which are to be kept in mind, they are put in a row, and form a sort of chain, which prevents the confusion to which you are exposed when bound to learn by heart. You can even create for yourself imaginary places. It is, therefore, necessary to have real or imaginary places, as well as pictures or phantoms, which are always arbitrary. The pictures are signs which serve to mark what you wish to retain; so that, as Cicero says, the places can be compared to wax, and the phantoms to letters," etc.

This principle has been followed and applied by nearly all writers on Mnemonics, from Simonides down to the last century. They differ only in the choice of the places. Some take real, others imaginary places, some compartments fitted up, others empty ones, etc., etc. Generally, they have taken any limited space, such as a room in a house, and have retained in the memory a series of fifty or a hundred objects in fixed positions in this room. They afterwards combined with these objects the series of names, phrases, etc,, which they intended to keep in mind, and each of which had previously been converted into a picture.

If the application had to be made to larger numbers of names, etc., the mnemonist had to multiply his positions by constructing an imaginary town, divided into ten districts, each containing ten houses, and each house having ten rooms.

Among Roman authors on Mnemonics, we may cite further Plinius, "Hist. Natural," lib. vii, cap. 24; Martianus Capella, lib. v., cap. De Memoria; and Ammianus Marcellinus, lib. xvi., cap. 5.

After the downfall of Rome, Mnemonics disappeared entirely from view, remaining concealed in the darkness of the monasteries.

The celebrated English monk, Roger Bacon (born 1214, in the county of Somerset), is one of the first who brought Mnemonics again to light.

He wrote a "Tractatus De Arte Memorativa," which has never been printed, but still exists in MS., at Oxford. Not having seen this MS., nor found in any author any particulars of it, we cannot say whether Bacon's method differs from that of other writers.

Those who have paid particular attention to the literature of Mnemonics, Aretin and Count Mailath, for instance, enumerate a great number of tracts on Mnemonics, belonging to the thirteenth century, but which are all valueless to us, being compilations from the above-cited Roman authors, or from one another.

About the middle of the fifteenth century, other works on Mnemonics appeared, namely one by a physician, at Perugia, enlitled, "Tractatus Artis Memorativæ," in which, of course, among other means of strengthening the memory, certain drugs or pills are strongly recommended. Conrad Celtes, a German poet of some renown, born in 1459, made the great discovery that the alphabet could be substituted in

Mnemonics for the places or pictures used by his predecessors. The historians of Mnemonics, especially Aretin, Reventlow, and the learned and famous bibliographer, Edward Marie Oettinger, in Leipzic, to whom I owe the above-mentioned and some of the following details on the history of Mnemonics, give a dozen other names of authors on Mnemonics belonging to this epoch.* But we will here point out only the most important writers who really introduced new ideas, or rendered themselves otherwise famous.

Among the public teachers of Mnemonics, one of the first was Petrus de Ravenna, who made his appearance at the end of the fifteenth century, and excited great enthusiasm by his public experiments. He was the disciple of the celebrated lawyer, Alexander de Imola.

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* E. M. Oettinger enumerates altogether a hundred and seventy-one printed works on Memory, and on Mnemonics; Aimé Paris gives a list of three hundred.

He travelled all over Italy, and was everywhere enthusiastically received. His contemporaries called him Petrus a Memoria, and several princes gave him licence to pass through their countries toll-free. These licenses exist still. When scarcely twenty years old, he recited at Padua all the Leges Codicis and all the sermons, word for word, which the magister Antonius Eremita had delivered during Lent. He once played a game of chess, and dictated at the same time two letters on stated subjects, while another person played at dice, and a fourth wrote down all the throws. When the game was finished, Ravenna recited from memory all the moves of the game of chess in the order that they had been played, all the words of the two letters backwards, and each throw of the dice in any order. The Duke Boguslaw, of Pomerania, persuaded him to leave Italy, and to come to Greifswalde. From thence he went to Wittenberg and then to Cologne. Cornelius Agrippa de Nettesheim,* tells us that Petrus was expelled from Cologne by the Dominicans, because they believed him to be a necromancer. From that time it is related that he wandered about without any settled place of abode, until he died at an advanced age, in 1512. His work, entitled "Ars Memorativa," went through nine editions, viz., "Phoenix Artis Memoriæ, s. Introductio ad Artificiosam Memoriam," Venetiis, 1491, vols. 4; Norimbergæ, 1501, vols. 8; Coloniæ, 1506, vols. 4; Parisiis, 1516, vols. 4; Venetiis, 1565, vols. 8; Vincentiæ, 1600, vols. 4; Coloniæ, 1608, vols. 4.

In the second part of the sixteenth century, a new prodigy of this kind made his appearance in the Netherlands, Lamprecht Schenkel, who was born in 1547, at Herzogenbusch, and became a schoolmaster till his twenty-fourth year. He then travelled for twenty years, as a teacher of Mnemonics, in Belgium, France, and Germany, and produced such a sensation, that at the University of Louvain he was declared a conjurer and sorcerer, and, as such, was denounced from the pulpits. John Baxius, the "Inquisitor Rerum Magicarum" at Antwerp, declared Schenkel's work on Mnemonics to be a work of the devil's. The bishop appointed a commission to examine the accusation of the inquisitor, and to hear the defence of Schenkel. This commission, after a minute examination, felt bound to give Schenkel a certificate, on the 1st of February, 1593, that his "Mnemonics" contained nothing "contra fidem Catholicam Romanam aut Republicam Christianam." But when he attempted to publish his work at Louvain, the censor of books, Henri Cuyck, refused his permission.

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* *Epistolæ, lib. ii.,* epist. 60, and lib. vii., p. 363.

Schenkel subsequently collected a great number of written certificates from priests, by the aid of which he obtained the reluctant permission of the theological faculty of Douay to publish the work. His troubles were not at an end, however; for the inquisitor of Antwerp, John Baxius, called the faculty to account; but the faculty protected the poor mnemonist, who, but for their protection, would have fallen a victim to the Inquisition.

In consequence of this persecution, Schenkel contrived to keep his Mnemonics secret, and exacted an oath of eternal silence from his disciples. He went from Belgium to Paris, where, having been examined by the rector of the University, he obtained, on the 14th November, 1601, from king Henry IV., the privilege of teaching his Mnemonics all over France. It was added, that whosoever dared to trouble him, or to teach Mnemonics without his consent, should pay a fine of 4,000 francs, of which one-third should go to the state, one-third to the poor, and the rest to the proprietor of the privilege.

The works he published were: "De Memoria," lib. i. Duaci, 1593; Antwerpiæ, lib. ii., 1593; "Leodii," 1595. Further: "Brevis Tractatus de Utilitatibus et Effectibus Mirabilibus Artis Memoriæ Parisiis," 1598; "Argentorati," 1619; "Gazophylacium Artis Memoriæ Argentorati," 1610.

As we have said, he made a great secret of his method, and imposed on his pupils an oath of eternal silence. But as he could not supply all the demands for instruction he authorized one of his pupils, Martin Sommer, to teach his method on condition of paying his master a part of his earnings. The pupil was not long faithful to his master, but published his secrets in two pamphlets, which appeared at Venice in

1619, entitled: "Brevis Delineatio de Utilitatibus et Effectibus Mirabilibus Artis Memoriæ ad eum Perfectionis Gradum Perductæ, ut Amplius Nihil Restet Nisi Applicatio." And, "Gazophylacium Artis Memoriæ quo omnia ea, quæ ad absolutum ejus Cognitionem inserviunt, recondita habentur, compendiose et absolute collectum per Lampertum Schenkel, nunc autem ipsius permissu a Martino Sommero, Silesio, in diversis Germaniæ academiis traditum et illustratum Venetiis," 1619.

According to Reventlow, Schenkel's method was nothing but the pictorial system of the ancients. To the same epoch belongs Jordano Bruno, who never taught Mnemonics publicly, but published different works on the subject, among others: "Ars Memoriæ," and: "De Compendiosa Architectura et Complementa Artis Lullii," Parisiis, 1582.

Jordano Bruno, in other respects a celebrated man in his day, being burnt at Rome as a heretic, in the year 1600, perfected the famous "Ars Lullii," a sort of philosophical system invented by Raymundus Lullus (born at Majorca, 1237,) who was ambitiously purposed to make one science of all human knowledge. Bruno endeavoured to apply this system to Mnemonics.

As a curiosity, we may indicate among the numerous works on Mnemonics published in the 16th century, a work which appeared in 1523, at Strasburg, in German, entitled: "A Short Advice, how Memory can be Wonderfully Strengthened." The author, Laurenz Fries, says in the preface, alluding to his system: "An excellent thing has been caught here, the improvement of the natural memory, vainly tried by diligence, and the wool is shorn from the ass."

This wonderful system, if not very successful, was at least not disagreeable in application, for after explaining that the seat of Memory is the occiput, the learned doctor recommends as especially advantageous to that faculty, roasted fowls, small birds, or young hares, and other delicious things for dinner; with apples and nuts for dessert. The disciple is allowed to enjoy good red wine, but otherwise he must be sober and moderate.

This part of the method is his own; the rest is copied from the ancients.

MODERN MNEMONICS.

It is well known that many nations have had no particular signs for numbers, as we have, but applied the letters of their alphabet as arithmetical signs or figures, as the Romans, the Greeks, the Hebrews, etc.

Figures being generally most difficult to be retained, and the picture-mnemonics being of very difficult application to figures, it is surprising that this circumstance did not sooner strike the men who made a special study of Mnemonics, and who took so much trouble to accommodate the Mnemonics of the ancients to their own practice.

Stanislaus Mink von Wenusheim* seems to have been the first who availed himself of this circumstance, and applied it to Mnemonics. In a periodical called "Parnassus," published in 1648, at Marburg, he gave to the world a paper entitled "Relatio Novissima ex Parnasso de Arte Reminiscentiæ." This was republished at Giessen, 1661. He applied the pictures and localities of the ancients. But, besides that, he gave, "as the most fertile secret," the combination of the letters with figures, to express numbers by words. The following is his alphabet:

1	P, W O,	3	F, V
2	C, K, Q, Z (X)	4	G

---

* Really, Winkelman.

5	L	8	R
6	M	9	S
7	N	0	T

The vowels and the H serve to form the words. To express 1648, he forms the phrase—

aBeo iMo aGoR.

He says of his invention, "Inventum hoc centum bonum mactatione dignum celebrabit posteritas. Plus habet in recessu, quam in prima fronte promittit, sed res, ætas, labor, usus, in dies docent aliquid novi."

We extract these details from the "History of Mnemonics," by J. Ch. Baron von Aretin, whom we shall mention later, and who gives no other details about the application of this alphabet; but as Winkelman had likewise pictures and localities, he seemed to have proceeded in the same way as his successors, Feinaigle, etc.

We know that one of the most renowned

philosophers of the seventeenth and eighteenth centuries, G. W. Leibnitz (born 1646, died 1716) has also written on Mnemonics, inasmuch as the Library of Hanover possesses a manuscript of this great man, which contains, "a secret how numbers, especially those of chronology, etc., can be conveyed to the memory so as never to be forgotten."

The substance of the secret is this; the alphabet has twenty-four elements, divided into vowels and consonants. The consonants are

B, C, D, F, G, K, L, M, etc,

The figures are 1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

As nothing is more difficult for the memory than figures, which we must, nevertheless, keep in mind, take consonants for figures, viz.:

1,	2,	3,	4,	5,	6,	7,	8,	9,	0.
B,	C,	F,	G,	L,	M,	N,	R,	S,	D,
P,	K,	V,							T,
W,	Z.								

Aretin gives, in his "History of Mnemonics," the original text of this very choice manuscript in Latin, with instances in German.

The first English work in which application was made of this idea, to express figures by syllables, seems to be Dr. Richard Grey's "Memoria Technica; or, A New Method of Artificial Memory," of which the first edition appeared in 1730.

The principal part of his method "is briefly this: to remember anything in history, chronology, geography, etc., a word is formed, the beginning whereof being the first syllable or syllables of the thing sought, does, by frequent repetition, of course draw after it the latter part, which is so contrived as to give the answer. Thus, in history, the Deluge happened in the year before Christ two thousand three hundred and forty-eight. This is signified by the word Deletok: Del standing for Deluge, *and etok for 2348.*"

The first thing to be done is to learn exactly the following series of vowels and consonants, which are to represent the numerical figures:

a	e	i	o	u	au	oi	ei	ou	y
1	2	3	4	5	6	7	8	9	0
b	d	t	f	l	s	p	k	n	z

These letters are assigned arbitrarily. In order to facilitate the keeping in mind such barbarous words as were formed with this alphabet, they are brought into verses, of which we will give here one or two specimens:

Chronological Miscellanies since the Conquest.

Jerusalem regained from the Turks, and Godfrey of Bouillon made king of it, 1099.

The Inquisition first erected against the Albigenses, 1222.

The confirmation of Magna Charta by King Henry III., 1225.

Wat Tyler's Rebellion suppressed, 1381.

Jack Cade's Rebellion suppressed, 1450.

Martin Luther began to preach in Germany against Indulgences, and other errors of the Church of Rome (Mar-luthlap), 1517.

The name of Protestants first began, etc., (Protalen), 1529.

The Smalkalden League, etc., (Smalcalloz), 1540.

The Council of Trent began, 13th December, 1545. (Tren-decat-alfu.)

The Memorial Lines.

God-bul*now*, Inquis*ded* Char*tecl* Tylika, Mar-luthlap, Protalen, Smalcal*loz*, Cadefly, Tren-decat-alfu., etc., etc.

This is the application to history.

The application to geography is similar:

The *memorial line* for France, as it was before the Revolution.

Fra-P Nor-I-cham; Bret-O-BouL Gui-La-Da-P.

P Nor-I-cham denotes the four *northern* governments, viz., P-icardy, *Nor*mandy, I-sle of France, and Champagne. Bret-O-BouL denotes the four middle governments, viz., *Bre*tagne, O-rleanois, *Bou*rgogne, and *L*-ionnois.

These extremely difficult, nay more, stultifying means of aiding the memory are still applied in this country in many schools, though it seems evident that it must be more difficult to keep in mind such monstrous words than the figures they represent. Another greater evil is, that cramming the mind with such materials, reduces us to parrot-like exercises, and suppresses all reasoning and all development of the mental faculties.

These dangerous features of Grey's "Memoria Technica" were soon perceived; and the first who modified Dr. Grey's plan, in forming words which had a signification, was Gregor von Feinaigle, a monk from Salem, near Constanz (Baden).

He did not, like Dr. Grey, take the letters arbitrarily, but took t for 1, "because t, like the figure 1, is a perpendicular or down stroke, and differs only from it in the addition of the small horizontal line drawn across the upper part of it; n, is the appropriate letter to represent 2, as there are two down strokes in it."

"'c, k, g, q. The figure 7, with a slight curvature, may be made to resemble a crooked stick, and as we shall remember this stick the better if something be hung upon it, a cage shall be suspended there. In the word cage, we obtain the consonants c and g, etc."

"In the figure 8, there are two oughts, or two round things; these may be converted into *beehives*, and if one be placed upon the other there will be a tolerably accurate idea of the figure 8. In the word beehive, are obtained b, h, v; and w, may be added, for it is compounded of vv."

"p, f. The figure 9, is not unlike a pipe, and as a pipe is seldom without a puff of smoke issuing from it, we have the p and the f in these two words; they are inseparably connected, and cannot easily be forgotten."

"These letters and the figures which they are intended to represent should be impressed strongly upon the memory, as the letters must be converted into words by the introduction of vowels."

His alphabet is as follows: 1=t; 2=n; 3=m; 4=r; 5=l; 6=d; 7=c, k, g, q; *8=b, h, v, w; 9*=p, f; 0=s, x, z.

To this alphabet he joined a complementary system of localities. He divides the walls of a room into places; each wall into nine places, so that a room gives thirty-six places. Then he divides the floor equally into nine parts. The first wall is for the units; the second, for the tens; and so on; so that *e.g.* the 6th place of the 4th wall is 36. "As one room will not supply us with sufficient numbers, a second room must be provided."

In order to remember a series of words, they are put in the several squares or places.

"As: apple, monkey, man, ship, pipe, cage, etc., being given, the ideas of these images must be connected together, and it will then be almost impossible to forget the order in which they are arranged. The first is an apple; the second, a monkey; this monkey takes the apple, eats, and offers it to the man, who is in the third place; the man is just going to embark on a long voyage, and for this purpose a ship will be in the fourth place; but he will smoke his pipe before he leaves his native country, the pipe is in the fifth place, etc."

For the application to chronology the places are filled up with symbols, about fifty in each room; on the first place the tower of Babel; the second, a *swan*; the third a mountain, and so on.

If the pupil will apply the system to chronology he is supposed to have fixed all the symbols in his mind.

Now for the application.

"1. William the Conqueror. A word must now be made from William; the first half *wil*, is taken, and to this is added *low*, by which willow is obtained; this enables us to remember William. The willow is fixed upon the tower of Babel, our first symbol. We have then William the I. But another circumstance remains; he was the conqueror. We hang some laurel, the reward of valour and the crown of conquest, upon the willow tree. The date is yet wanting; we say the laurel is dead; in the word *dead* are d d, 6 6 the 1,000 being understood through the whole series."

The application to geography is so complicated that it would be impossible to understand it, without diagrams.

Feinaigle travelled about Germany and France to teach his method. But his pupils were forced to sign a paper, "whereby they pledged their honour and their property that they would not teach his method to any one before two years had elapsed, unless they had obtained, previously, the express permission of the professor; that they never would betray anything of the art in presence of foreigners, and only speak about it with those whom they know to be pupils of the professor, or his assistants."

One of his pupils, whom he sent to Frankfort to teach his method, betrayed the professor, and published, 1811: "Praktische Gedächtniss Kunst nach den Vorlesungen des Herrn Gregor v. Feinaigle." The same year Feinaigle came to England, where he taught his method with great success. He was even admitted to lecture at the Royal Institution. He published his method, 1812, with the title, "The New Art of Memory, founded upon the principles taught by M. Gregor von Feinaigle. Illustrated by engravings, 8vo., London: Sherwood."

The British Museum does not possess a copy of this work, so that we were forced to take the above extracts from M. Fauvel Gouraud's "Phreno-Mnemotechny, (see p. 37).

The Baron *Aretin* published, 1810, a very large volume, entitled, "Systematische Anleitung zur Theorie und Praxis der Mnemonik, etc.;" which has the sole merit of having given the most complete history of

Mnemonics, which occupies 424 pages, and whence we have taken some of the facts cited here.

His "Theory and Praxis of Mnemonics," developed in 136 pages, is nothing but the picture-system of the ancients, with some modifications, more apt to complicate than to simplify the application.

The next step in Mnemonics was made by M. Aimé Paris, a Frenchman; who taught Mnemonics in France a short time after Feinaigle. He practised in the beginning the system of the latter, but soon dropped the localities, modified a little the alphabet, and contented himself with forming phrases, in which the last word or words expressed the figures. He published his first book, 1823, under the following title; "Resumé des diverses specialités etudiées dans les cours de Mnémotechnie, dirigés par MM. Aimé Paris, et Adrien Berbrugger."

The seventh edition of this work appeared, 1832, under the title, "Principes et applications diverses de la Mnemotechnie, ou l'art d'aider la Memoire, par Aimé Paris.

He begins, without other preamble, with the transformation of figures into words. The first chapter is headed, "Transformation des chiffres, Application à la Chronologie."

He divides the words into articulations, and into sounds, which are other words for consonants and vowels; and forms his alphabet like that of Feinaigle, with some modifications, which will be seen.

Then he constructed phrases, which are to be learnt by heart. For instance:

The death of Socrates, 400, re-se-ze.
rassise.

La mort de Socrate précéda de peu de temps l'epoque où la haine contre lui fut *rassise.*

The defeat of Varus, 9 pe
be
appui

Varus fit perdre à Auguste une armée regardée comme inébranlable *appui*.

The application to a series of names or words is done by a hundred words to represent the numbers from 1 to 100. Each name must then be brought into a phrase with a word which expresses the order. For instance:

Clovis I., the fifth king of France, 481. The fifth word is *lieu*, and 481 r-v-t. Our phrase will be:

Plus d'un homme de haut *lieu* perit par la volonté de Clovis I., qui tenait à voir tous ses *rivaux tués*.

There are other applications to geography, astronomy, chemistry, and so on; but they are all made in a similar way. We are unable to give more instances, as the British Museum does not possess this work, and we are therefore limited to the few notices we find in Mr. Otto's book. See p. 49.

A Pole, Jazwinsky, revived the picture system, and united it with Aimé Paris's method. This method has been published by the General J. Bem, under the title

"Exposé Général de la Methode Mnémonique Polonaise, perfectionnée à Paris, suivi d'une Application Speciale à l'Histoire," par J. Bem. Paris, 1839. The principal idea of this method, called the Polish method, is to facilitate the study of history by Mnemonic tables, divided into a hundred compartments, for one century. The facts are thus placed as points or pictures in those cases, which correspond with the year. For instance, a radiating cross for the propagation of Christianity; a cross and sword, with a torch, for the persecution of the Christians, and so on.

Major Beniowski taught Mnemonics in London, and published two little pamphlets, the first entitled, "Major Beniowski's Phrenotypics; or, a New Method of Studying and Committing to Memory Languages, Sciences, and Arts." This pamphlet, which has twenty-six pages only, gives, in twelve pages, a short history of Mnemonics, where we find that the author, in 1832, followed a course of lectures delivered at Paris by Mr. Aimé Paris, to whom he gratefully acknowledges himself to be indebted for many a Mnemonic contrivance. The other pages say nothing about his system; but mention only the results which can be obtained with it.

The second pamphlet, published in 1842, bears the title, "A Handbook of Phrenotypics for Teachers and Students," by Major Beniowsky, the discoverer of these principles of the art of memory.

He calls his system Phrenotypics, because "he sincerely believes he has improved Mnemonics to a degree such as to authorise him to baptise it with the name of 'The Phrenotyping, or Brain-Printing Method.'" The book, of thirty-nine pages, is only a first part, and contains the "development of the principle of familiarity." He takes symbols to explain the greater or less familiarity of notions, and takes much trouble to show by those symbols the difference of "given notions" and "sprung-up notions."

His phrenotypic classification of human studies is as follows:—

"In our studies we have to connect together—

I. Two notions, each of which is a familiar one.

II. Two notions, one of which is a familiar one, and the other a non-familiar one; or—

III. Two notions, each of which is a non-familiar one.

The connection is made in this way:

"When we had to commit to memory the following series of couples:

beauty	mischief
fire	life, etc.,

I put these couples before the mind of my pupil; and the following took place. As soon as beauty and mischief were put, a certain lady rose before his imagination, which he related thus:

The beauty of that lady was my mischief.

After fire—life, a fireplace rose before his imagination, which he related thus:

Fire is upon a certain fireplace; round it is life.

II. Suppose I had to commit to memory, lamono—sofa.

Lemon has taken out the inkstain from my *sofa*."

III.—To explain the third process, which he declares to be "the most difficult problem, which, by the by, embraces the greater portion of human studies," he relates a long anecdote, to tell how he kept in mind names of plants, by giving them nicknames. The sight of "Achillea millefolium" suggested *imperatively* the name of "roof covered with snow." The name "Achillea m." caused to rise before the imagination "an eagle with a thousand feathers" (on account of "aquila, in Latin eagle, mille, thousand, and folium, leaf.") I put simultaneously before my mind, "roof covered with snow, and eagle;" and "high mountain" rose immediately before my imagination, thus: "*Roofs* covered with snow are to be found in high mountains, and so are eagles."

The last page contains the following corollary:

"The rapidity and strength with which two given notions stick together is in the ratio of their joint familiarity.

"This is what I declare *the first of the two principles of the art of Memory discovered by myself*, and christened with the name of the

"Principle of Familiarity."

The second principle discovered by the Major has not yet been communicated to the world, neither the application of those discoveries to numbers, sciences, and arts.

In the year 1845, was published in New

York and London, "Phreno-Mnemotechny; or, the Art of Memory; the series of lectures explanatory of the system, delivered in New York and Philadelphia, in the beginning of 1844, by Francis Fauvel Gouraud, D.E.S. of the University of France."

In an Introduction of ninety-eight pages, is given an historical sketch of celebrated natural memories; definitions, etc., of artificial memory; and the theory of natural memory (from which we have given a sample elsewhere in this book); and the origin and history of Mnemonics. When the author comes to speak of himself, calling himself modestly "Egomet," and "a boy remarkable in many respects," he tells us that, in studying the System of Feinaigle, by a sudden inspiration, he asked himself, "Why should we call the consonants b, c, d, g, etc., as if they were written with the vowel e after them, like

be, ce, de, ge, etc.,

while f, l, m, n, s, and x are pronounced with the vowel e before them, as—

ef, el, em, en, es, and ex.

"Why not call them all in one homogeneous way, and pronounce the latter on the same principle with the former—

fe, le, me, ne, se, xe?

"And why not say, upon the same principle, for k, q, r, and j,

ke, que, re, and je,

instead of kay, qu, ar, jay?"

After this great discovery, the "remarkable boy" continues: "I had no sooner adopted a principle so natural, and, I may even say with reason, so *philosophical*, than the possibility of finding those similarities of *sounds* between certain letters of the alphabet, whose fundamental existence I had already suspected, was suddenly presented to my mind, with the greatest simplicity, placing, in fact, in the same line all the consonants—

b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, x, z,

I said to myself, 'Let us henceforth uniformly say—

be, ce, de, fe, ge, he, je, ke, etc.,

then, adopting the analogical principle of Feinagle to the figures, let us place

1	2	3	4	5	6	7	8	9	0
Te	Ne	Me	Re	Le		Ke	Ve	Te	Se.'"

He places D, which Feinaigle took for 6, beneath Te, as having very nearly the same sound; Que beneath Re, etc.; and places Xe for 6.

"The origin of the key of litero-numerical equivalents, that is to say, the fundamental basis of the whole system which this work has for its object, being the most important point which it was necessary to know, I could not avoid expatiating upon the gradual progress which brought it to its perfection; and as the last degree of its perfection *is not yet attained here*, and as this glory belongs to the illustrious Aimé Paris, it remains for me to expose, in all its lucidity, that part of his right to the gratitude and admiration of every adept and amateur of the system, which will be hereafter presented in all the splendour of its simplicity and incontestable power."

The exposition begins as follows:

"In 1822 nearly three years had already elapsed since my pelagian tutor had initiated me into the doctrines of Feinaigle. While endeavouring to bring his beautiful idea to perfection, I had by turns visited India, Arabia, China, and South America." He had tasted the ambrosia of Constance, "hunted the African ostrich at the Cape of Good Hope," and performed other remarkable deeds, which nearly fill one of the large pages of his book. The frigate which was happy enough to convey this prodigious child round the world anchored in the port of Rochfort, and our hero proceeded to

Nantes, where he found in the newspapers an agreeable surprise, consisting of an advertisement of a public lecture, with Mnemotechnic experiments, by Mr. Aimé Paris. After this lecture, which, naturally, our juvenile prodigy attended, a subscription, list for the formation of a class was immediately covered with hundreds of names, "among which mine did not fail."

The author describes as follows the result of Mr. Aimé Paris's lectures:

"The reader may easily imagine the surprise, mingled at the same time with pleasure, and, I candidly own it, a little *jealousy*, which I felt, when, in the first lesson of Aimé Paris, I saw him unroll before the eyes of the auditory, as the fundamental basis of *his* system, the following diagram:

0	1	2	3	4	5	6	7	8	9
Se	Te	Ne	Me	Re	Le	Che	Ke	Xe	Pe
Ze	De	Gne			LLe	Je	Gue	Ve	Be

"Thus, as the reader will perceive, the

only radical difference, but one *extremely important*, which existed between this fundamental basis and mine is, that the number 6, to which I had given the double consonant Xe, Aimé Paris, more fortunate than I in his researches upon the simplification of the key of Feinaigle, had allotted the double letter CHe and the consonant Ge or Je, which had entirely escaped me, and whose absence rendered my basis positively incomplete."

At that time, Mr. Aimé Paris seems to have still applied the localities in combination with the alphabet, like Feinaigle, as Mr. Gouraud tells us.

He describes the "discoveries which belong properly to himself, and finds the *enormous* difference" between his own fundamental basis and that of Aimé Paris (which are quite identical, with the exception of 6, where Aimé Paris's substitution is recognised by the author himself as superior), that the latter adapted it only to the *French language*, whereas he makes it agree or conform to the English language.

The following 500 pages show the applications of this alphabet, which are like the basis, and all copied, or rather adapted, to the English language from the "Mnemonics" of Aimé Paris. It will, therefore, suffice to cite only one or two instances of the different applications:

Deluge of Ogyges, 1764. te-ke-she-re.

The Deluge of Gyges was probably the result of some very - - - - thick shower.

The Rape of the Sabines, 700 ghe-le-se.

The Rape of the Sabines was an event that now-a-days would send its perpetrators to the - - - gallows.

The application, which, however, seems to have been discovered by Mr. Gouraud, is, where he speaks about the association of ideas, which he applies to facilitate the keeping in mind of sixteen formulas expressing the "ratio of the diameter to the circumference of the circle," with 154 decimals. "If," says he, "instead of connecting the denominating figure by its proper name, we were enabled to metamorphose it, as it were, into a *being* offering to the mind any other idea than that of a figure; if, finally, we were enabled to make of each of them a *substantive*, a *sensible being*, endowed with the power of *thought*, *action*, and *speech!* and therefore capable of offering *ideas of association*, would not this be rightly considered as one of the most ingenious triumphs of the system, and its already tried philosophy? And this is precisely what I have succeeded in doing."

The "Metamorphoses" are these:

"We will take for the figure zero, the substantive hero (burst of applause); for the figure *one* the substantive ... wand

two ... ... tooth

three ... ... tree

four ... ... fort

six	sexton
seven	savannah
eight	hate"

The lecturer answered the prolonged applause with which this invention was received by his auditory: "I knew that you would at once feel and appreciate the real Mnemotechnic value of this beautiful and ingenious adaptation, for its importance strikes the mind at a single glance."

The formula for the first ten figures of the 155 units, is:

My deary Dolly, be no chilly.

"If you desire to write down *all* the figures of the ratio, you will first mentally call for the figures of the Decade Zero, and you will have no sooner pronounced this word zero, than the equivalent hero, will at once rush to your mind, and immediately the *sentence* will follow, without even the assistance of the connecting phrase. Yet, in case the sentence should not strike your mind immediately, by trying the words of the connecting phrase, and saying:

"A *hero* is seldom heard saying to an indifferent child—you will see that the sentence

My dear Dolly, be no chilly!

will immediately follow the last word—so powerful is the association (laughter and applause)."

This instance will suffice our readers to appreciate the real value of this "beautiful and ingenious adaptation of the association of ideas."

The application of the system to historical and scientific Nomenclatures is equally copied from Aimé Paris.

In order to express the numbers from 1 to 100, called by Aimé Paris, "points de rappel," he takes nine adjectives, which represent the figures 1—9; and ten substantives for the ten figures 0—9. The adjectives are: tight, new, marry, round, long, cheap, great, fair, pious; the substantives: sound, tie, name, mount, roof, life, jewel, game, fire, and weapon. One of the series represents the units, the other the tens. With those two series of words, all numbers from 1 to 100 are expressed as follows: for instance, 14 te and re, is a tight roof. What is a tight roof? A tomb. Consequently a tomb will stand for 14, etc. After having established the 100 expressions, we come to the practical application, to the nomenclature of the kings of England. But we must first perform another operation, called "Individualization of sovereigns having a similar name." This is done in this way. You take the most prominent syllable of the name, for instance: ar, for Edward; there are six Edwards, which with their numbers will give you—

AR — te for Edward I.
AR — ne ,, II.
AR — me ,, III.

AR — re for Edward IV.
AR — le " V.
AR — che " VI.
AR — te will give us the word AR t
AR — ne " " AR-ena
AR — me " " AR-my
AR — ro " " AR-row
AR — le (a city of France) AR-le
AR — che " " AR ch

"Will there be any possibility," adds the author, "of mistaking one king's name for another? Is not this application as simple and philosophical as it is beautiful and ingenious?" (impetuous burst of applause).

After having transformed all the names of the kings according to those "ingenious" principles, "you bring them together with the word of the order in one phrase, for instance: the 49th king Nro 49 is round weapon, which gives shield. Then rushes to the mind:

"The shield is not worn by a warrior to

satisfy a mere......whim (William III.) but to enable them to......dodge off a fighter sidewise (1688-14-010); that is, ascended the throne in 1688, occupied it 14 years, and belongs to the 10th dynasty.

The constellations, the longitudes, and latitudes, phrenology, astronomy, are "facilitated" in a similar way.

Carl Otto, a Dane, travelled in Germany as teacher of Mnemonics, and published under the name Carl Otto Reventlow, 1843, a book entitled "Lehrbuch der Mnemotechnik. He simplified the method of Aimé Paris, in abandoning the phrases and taking only the words which expressed the figures. The desire, however, to express each historical date, led to the formation of words, which very often brought us back to the difficulties above mentioned, or to the associations of ideas like those of Major Beniowsky. His lectures delivered in the year 1844, at Prague, gave to the writer of this little book the first idea of a recurring to Mnemonics for the medical studies, in which he was then engaged. A few months afterwards he lectured himself on Mnemonics, teaching Mr. Otto's system. By and bye his psychological studies led him to the conviction that, all those associations of ideas, which were taken as bases for Mnemonic systems, were founded on a false understanding of the processes of the mind. He endeavoured to take as a basis for a Mnemonic method those rules by which the true or natural association of ideas is performed in the mind. He soon found that the reasons why we retain certain things more easily than others could be made available to facilitate learning by heart. The following pages develop these principles and some of their applications.

ON MEMORY.

The faculty of Memory has always been held in the highest reverence by the poet and the philosopher. In the mythology of the Greeks, it is represented as the mother of the Muses; and this faculty of the mind is, in fact, the basis of all intellectual activity. If we could suppose for a moment the case of an individual entirely destitute of Memory, it must be evident that he could only rank with beings in the lowest scale of creation—that he would be not only unable to feel or to think, but almost incapable of performing voluntary functions of any kind. Moreover, Memory is not the exclusive endowment of man, but is possessed by all animals from the highest to the lowest in the scale of creation.

With respect to the degree in which the gift of Memory is possessed by the lower animals, many interesting illustrations are to be found in the researches and observations recorded by eminent naturalists. We propose to cite a few of these.

It is stated by Ehrenberg, that the Hydatina Senta, an animalcule so minute as to be perceptible only by the aid of a powerful microscope, positively possesses both a knowledge of localities and the power of exercising choice or option; which faculties must be ascribed to Memory. Again, the celebrated naturalist Hubner has observed, that the leaf-mite, curiously enough, is operated upon by the ant in the same manner in which a milkmaid operates upon the cow; that is to say, the ant titillates the abdomen of the mite, and thus extracts the honey from it. And the mite itself is evidently prepared for and desirous of the process taking place. No sooner does it perceive the approach of the ant, than it immediately understands the purpose of the latter. This is shown by the position which it takes, manifesting its willingness to give up the honey, which it had previously retained in spite of the natural want or inclination to eject it—such venting or ejection being, in fact, a natural and necessary relief. Therefore the mite, when perceiving the approach of the ant, *remembers* the object which the latter has in view.

As regards the ant itself, innumerable observations shew that it possesses an extraordinary and retentive Memory. It was particularly noticed by Kirby, that ants, which had belonged to the same company, recognised each other distinctly after a separation of four months, and that they manifested signs of pleasure at meeting again.

Dr. Franklin, the renowned American philosopher, made an experiment so ingenious and interesting as to be worthy of special record. The doctor suspended from the ceiling of his room a pot filled with syrup. An ant being placed on the syrup, discovered the way to retire by means of the cord by which the pot was attached to the ceiling, went back to the garden, and after about half an hour returned, but not alone. In fact, it was followed by a perfect concourse of its companions, which had (clearly in compliance with some communication from it) come to share in the feast. It *remembered* the direction to take, and communicated the fact to the others; and thus the busy multitude scrambled their way down the cord, which formed a highway quite adapted to their object.

Still more remarkable than those just recorded is the observation made by the French naturalist, Dupont de Nemours, and communicated by him to the National Institute of France. He wished to see how far he could succeed, by the process of isolation, in preserving an attractive object from the attacks of these little nibblers, and, for that purpose, placed a loaf of sugar upon a sort of island in the centre of a tray, filled with water. The result was curious. The ants crept up the wall, and thence along the ceiling until they arrived at the spot exactly above the sugar-loaf, and then allowed themselves to drop,—of course with the intention of alighting on it. Some of them succeeded, and others dropped off into the water Of these latter, some swam to what we may term "land," at the edge of the tray, some to the island, and others were so unfortunate as to be drowned. Those who had saved themselves tried perseveringly to rescue their drowning companions, holding on to the shore by one foot, and then extending themselves as far as possible over the water. They were, however, unable to reach any of the distressed ones, and were themselves afraid to venture again on the water. Being thwarted in this attempt, some of them went back to their hillock to fetch assistance, with as much method as the companions of a man who had fallen through a hole in the ice on the Serpentine would run for the Humane Society's tackle. They soon came back with eight of the largest and strongest ants, which, without a moment's hesitation, plunged into the water, swam towards the drowned and drowning, and supporting them between their feelers, conveyed them to the shore.

And now ensued a scene truly wonderful. Large and small, strong and weak, rivalled each other in aiding and assisting. They rolled the seemingly dead bodies backwards and forwards, rubbed them up and down, shook them, and covered them with their own bodies. Indeed, they resorted to some of the most approved modes of restoring life suspended through immersion in water. The result of their efforts was, that out of eleven apparent "corpses," four were completely restored; and a fifth, though feeble and ill, was able, with help, to reach home. Here, not only the faculty of Memory was active, but something closely resembling human reflection, and human knowledge and reasoning.

Of bees, most interesting anecdotes, not merely of instinct, but of the exercise of a powerful Memory, are recorded. Hubner, Kirby, and Stickney, describe the proceedings of bees, which, having been feasted with honey one autumn from a particular window, returned next spring to the same window, though there was no honey for them. But, beyond doubt, their Memory brought before them, on the return of the sunshine and life of spring, the circumstance of the hospitality they had received.

In another case, a number of bees, which were taken from a hole in a roof and put into a beehive, every time that the hive intended to swarm, sent out spies to examine their former habitation.

Most readers are acquainted with the sadly interesting story of the celebrated spider of M. de Pelisson, so long confined in the Paris Bastile, and how regularly it came to receive its flies whenever its master played on his bagpipes. Professor Eschke, of Berlin, accustomed a spider to come to him, and to take flies out of his hands.

Passing from land to water, it appears undeniable, that fishes possess their own adequate faculties of Memory; if they did not, they could not learn to come, when summoned by the sound of a bell, to receive their food. The talking and performing fish, which has been lately exhibited in London, evinces the possession of Memory amongst other faculties. Colonel Macdowall, of Logan, had a codfish, which became so well acquainted with its attendant, that the latter could scratch its head, and otherwise make free with it, though usually the slightest noise would cause it to dart away.

Proceeding to the reptile class, similar evidences of the universality of Memory appear. The mode in which even the most venomous serpents, such as the Cobra di Capella, and the Rattle-snake, are tamed and trained, can only be reconciled with the fact of their possessing Memory. Few who have ever read will forget the story related by Madame Noyer of the serpent at Dijon, which, on a given signal, came and nestled in the bosom of a lady, and, on another signal being given, quitted it and retired.

The examples above given, which are only a few out of very many that could be adduced, are probably sufficient to prove, that even the lowest classes of the animal kingdom possess Memory, and in some cases a very retentive one.

Volume after volume might be filled with examples to the same effect, in reference to the higher classes of animals. We will here, however, cite only a few. The capacity for learning developed in starlings, canaries, parrots, etc., is well known, as is the astonishing local perception or sensitiveness of the migratory birds, and, in another point of view, of the carrier pigeon. The dread which game of every kind, and even some descriptions of domestic poultry, exhibit at the sight of a gun, even without any lustre is also frequently remarked.

M. Autenrieth (to whom we are indebted for many of the details which have already been given) mentions, in connection with the Stork, a curious illustration of the retentive Memory inherent in some birds. He relates, that one of the colleges in Tubingen possessed a tame stork. On one occasion, during autumn, a student fired, from a window in the college, at a stork's nest, which was built on the top of an adjoining house. One of the storks in the nest was wounded so badly as not to be able to fly for several weeks, but recovered sufficiently to go away with the others when the period for the annual migration came. Next spring, when the birds returned, a stork frequently entered the court-yard of the college, and at each of its visits attacked the tame stork with great fury. The next spring after, four storks entered the court-yard together, and attacked the poor tame stork so fiercely, that but for prompt assistance it would have been killed. But they were not to be deprived of their revenge; for, the following spring again no less than twenty storks rushed in suddenly, and attacked their victim with such violence, that before there was time to rescue him, they had despatched him. This was obviously an act of revenge, arising from the *remembrance*, by the wild storks, of the injury inflicted by a student of the college upon one of their companions; and this recollection enduring undiminished for three years, inspired them with a wish to do something in return which would cause annoyance to the college, which they associated with their comrade's sufferings. Here was strong Memory, as well as the exercise of what may be termed a species of reasoning.

Again, to what, if not to the exercise of Memory, is to be attributed the profound mourning of the Phoca for its lost young, the grief for the lost master, the home-sickness, the vengeance and the gratitude shown by the horse, the elephant, the dog, and other quadrupeds? The manifestation of such emotions can only be attributed to remembrance of the society to which the animals respectively were accustomed, and which they loved; and, in an equal degree, to recollection of kindness or injuries which they had received.

The faculty of Memory, then, being such

an important and universal agent,—or rather the foundation of intellectual life—it is not surprising, that, even in the earliest ages of which there is any authentic record, philosophers should have already devoted profound and special attention to the investigation, analysis, and definition of this faculty.

Aristotle compared the faculty of Memory to the impression of a seal, which remains neither in water, in motion or running, nor yet in a hard mass. In like manner (observes the same philosopher), Memory is strong and durable only when the mind has a certain degree of calmness, and when, at least in man, the individual is at a certain age. It is feeble in the activity of childhood, and in the torpidity of old age.

Plutarch propounds a curious theory. He seems to have thought that the ideas are stored in our minds just as (to use a homely simile) herrings are packed in a barrel. For he calls Memory the larder of the soul, from which it takes its food and sustenance. This idea is at least pretty, if not quite accurate.

The French physiologist, Bonnet, imagined, that the activity of the perception of ideas was founded on the flexibility or elasticity of the fibres of the brain; and he further propounds the theory, that the more frequently and vigorously the flexion takes place in any given direction, the more easy is the reproduction of any particular idea; in other words the reproduction of the idea depends upon the frequency of the exertion of this power.

Other investigators imagine that the folds of the cerebellum are arranged somewhat in the form of a book, in which the ideas are inscribed for use as occasion may arise.

The ancient Greeks placed the seat of Memory between the eyebrows. Allusions to this notion may be often seen in their writings. The Romans, on the other hand, supposed that it lay in the laps of the ears; and the Chinese believe to this day, that the principal seat of the Memory is the larynx. But, however great is, or, at least, was, the difference of opinion amongst different people, in different ages, respecting the seat or depository of this faculty, on one point all have been unanimous; namely, that Memory is truly and essentially the basis of our intellectual life, and absolutely indispensable to it. Centuries before the Christian era, Æschylus, the great dramatic poet of Greece, in his most celebrated drama,* termed Memory the mother of the sciences. This is undoubtedly one of its proper attributes. A modern writer on Mnemonics,

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* "Prometheus Bound," verse 450.

Mr. F. Fauvel Gouraud, respecting whose labours further particulars are given in another portion of this volume, makes the following remarks:—

"Cicero, Quintilian, Locke, Bacon, and Montaigne, have endeavoured to define memory. But, however great may have been their respective abilities in the art of defining, they have all failed to mark this function with adequate distinctness. Having, therefore, no authority sufficiently satisfactory to quote, I shall attempt to define memory as the treasury of the soul, as the repository of intellectual wealth; the library of the mind, in which the records of the past unfold themselves before us at our pleasure; and the supreme power of the human intellect, or, as a monarchist would say, the sceptre of the sciences, literature, and the arts." (For the better understanding of the qualifying phrase respecting monarchists, it ought to be added, that the work of Mr. Gouraud was published in the republican city of New York.)

With respect to the merits of this definition, we are inclined to think, that Mr. Gouraud was quite right in saying, that, however high were the abilities of the philosophers mentioned by him, and however ingenious they might have been in the process of defining, they would never have succeeded in providing such a definition as that just quoted, and on which he greatly prides himself.

But a great advance in exact knowledge has been made. Modern psychology, respecting which Mr. Gouraud, and almost all writers upon Mnemonics appear to have been strangely ignorant, has, with the aid derived from the prodigious progress of physiological science, diffused a new light upon the nature of the human mind; and the wish expressed more than two hundred years ago by Bacon, to penetrate more profoundly into the nature of the faculty of Memory (justly designated by Kant the most wonderful of the faculties), has been, if not entirely, at least partially fulfilled.

THE SEAT OF THE MEMORY.

NOTWITHSTANDING the different theories which have been held respecting the seat of Memory, to some of which I have alluded it is now ascertained, beyond doubt, that the depository of this faculty, like that of all our intellectual endowments, is the brain. The experiments made by Flourens and Hertwig, and which are amongst the most interesting in the annals of physiological research, prove that it exists in the primitive nerves of the cerebrum ; because, when these are removed, Memory disappears, together with the other mental and sensitive faculties. From this fact, it is clear, that Memory, like any other faculty of the mind, is not dependent on any particular part of the brain. The greater part of the general mass can be diminished in whatever direction the experimentalist may prefer, either from the top, or underneath, or from the sides of the brain; and no effect will be perceived on any one faculty of the mind. But the moment that the diminution exceeds a certain limit, no matter in what part of the brain such diminution takes place, all the powers of the mind cease at once and simultaneously. This circumstance proves beyond dispute, that the state of the Memory, like all other qualities of the mind, is moderated or regulated by a certain condition of the brain, but does not depend on any particular part of this organ. And hence it may likewise be inferred, that the psychological phenomena, throughout all their ramifications, are regulated by the influence of the brain. It is, therefore, evident, that every circumstance or condition that influences the body, and especially the brain, is capable of influencing our mental faculties; and hence it is easily understood, that physiologists and physicians, whether writing on the subject of Mnemonics or treating patients whose Memory is lost or defective, prescribe medicine and dietetic rules with a view to produce an effect upon the brain, and, through it, upon the Memory.

It may be mentioned, however, that in our reference to the brain as influencing the mental faculties we intended only to show the connexion between Psychology and Physiology in regard to Memory. Our object here is Memory in a natural condition of the mind.

PSYCHOLOGICAL PROCESSES OF THE MIND CONCERNING MEMORY.

Psychology demonstrates the source of the mind's activity—the seat of the intellectual powers. Acting upon this knowledge, we will endeavour to show, that, by observing and following out the natural laws by which the mental machinery is carried on, we may arrive at a simple and effectual means of invigorating and improving this machinery, and, consequently, of improving all our intellectual faculties, and, of course, Memory along with them.

In order to bring forward this proof in a clear and methodical manner, we will, in the first place, explain the psychological processes of the mind, which shall afterwards be illustrated in their proper place:—

If we observe the general constitution of mankind in their physical and mental conformation, we shall find two different conditions or attributes: one, governed or limited both by time and space; for instance, the movements of the body, the circulation of the blood, etc.: the other existing only in time, and not in space, such as thought.

When we speak about a condition or attribute, there must be a being or entity in which it is existent.

The being or entity whose conditions or attributes are limited both by time and space, is the body. And the being or entity whose conditions and attributes are limited only by time, is the mind.

The attributes which characterise the mind are called reflections or ideas.

ON THE REPRODUCTION OF IDEAS.

Experience teaches us, that the ideas, which arise in the mind, expel those previously present; moreover, that they sometimes recal others which were once before in our thoughts.

This latter function of the mind, that is to say, the recalling of ideas is termed "the reproduction of ideas."

MEMORY AND IMAGINATION.

The process of reproduction of ideas may take place in two different ways. The ideas may be reproduced exactly in the form in which they had previously existed in the mind, or in a changed or modified form.

That faculty of the mind by which ideas are reproduced exactly and without any change, is called MEMORY; and the faculty which reproduces them in a form more or less changed, is termed IMAGINATION.

LAWS GOVERNING THE REPRODUCTION OF IDEAS.

The most ancient philosophers, including Aristotle, have laid down laws and principles respecting the reproduction of ideas. These laws and principles are based upon experience and observation; and are, the following—

The law of analogy.
The law of opposition.
The law of co-existence.
The law of succession.

1. The law of analogy is defined as follows:—

Analogous ideas reproduce each other.

Analogous ideas are those which have one or more qualities in common; for example, *tree* and *branch.* If these be analysed, it will be found, that all the qualities or attributes of the latter are contained in the former.

2. The law of opposition is as follows:—

Opposite ideas recal each other.

Those ideas are termed *opposite* which have one or more qualities in common, but which at the same time contain qualities wholly different from, or opposed to each other; for instance, *horse* and *eagle.* If these ideas are analysed, it will be found, that the animals which they represent possess in common the qualities or attributes which characterise the vertebrate animals. But those qualities in the horse which characterise the mammalian class of animals, and those attributes in the eagle, characterising the bird class, are the attributes which exclude or oppose each other, and, consequently, bring the relations between the horse and the eagle within the law of opposition.

3. The law of co-existence may be thus defined:—

Ideas which at some former period have been in the mind at one and the same time recal each other.

For example: If at some previous period you have seen a particular person at a certain place, the person will remind you of the place, and, *vice versâ*, the place will remind you of the person. (This is a general rule, but subject to frequent exceptions, as is explained farther on.)

4. The law of succession may be thus defined, viz.:

Ideas which have at some previous time succeeded each other in the mind, recal each other.

We have already defined the Memory as that faculty of the mind by which ideas are reproduced without any change or modification. Consequently a "good Memory" —which means a retentive one — is neither more nor less than the faculty of reproducing ideas without change, and with facility and exactness.

Two ideas present in the mind, cannot remain isolated from one another. One will expel or reject the other, or they will blend partially or wholly together.

If they are neither analogous nor opposite (see pp. 76, 77), the stronger will expel the weaker—analogous ideas will blend entirely, the opposite partially. (In the latter case, the common qualities will blend and the different will repel each other). The greater the vigour with which the ideas have arisen together in the mind or consciousness, the more complete will be the blending of the analogous parts. And if, on a subsequent occasion, one of two such ideas presents itself to the mind, the other will be recalled immediately, in consequence of the process of blending which had previously taken place.

This fact proves indisputably, that reproduction of ideas is mainly dependent upon the strength or vivacity with which the ideas primitively come to the mind, or, in other words, upon the first impression which the mind receives.

But observe: the first impression having nothing to do with the faculty of reproduction, that is to say, with Memory, we need not recur to Memory in order to render the reproduction of ideas more easy and certain.

ON THE IMPROVEMENT OF THE MEMORY.

Probably the main defect of all mnemonic systems from Simonides, who is commonly reported to have been the inventor of Mnemonics, downwards, is, that not one of the numerous writers on the subject has fully studied the nature of the Memory, and based his system upon that. Had this been done, much difficulty and confusion would have been avoided, and the system would have attained greater perfection before now.

We purpose, therefore, to endeavour to remedy this defect, taking for our starting point what has just been said about the faculty and functions of Memory. In this endeavour, our principal task will be, to show how Memory can be improved and strengthened by the use of facilities arising from the true nature of the mind; and, consequently, on a natural system and in a natural manner.

In a previous paragraph it has been shown, that the primitive or original idea regulates the reproduction of ideas; that is to say, supposing the primitive ideas to have been strong and vivid, their reproduction will be easy, or almost spontaneous. In fact, it may constantly be remarked, that persons in very advanced age can distinctly remember events long since passed—events that occurred in their youth or childhood, whilst they are incapable of remembering very recent matters. Now, if natural weakness of Memory had been the cause of these old people not remembering very recent events, they would of course forget long-passed events as well as those of yesterday or to-day. But the fact which accounts for the apparent paradox is, that the impression or primitive idea of the events which occurred in youth was very powerful; and, consequently, the reproduction continues easy to the close of life; whereas the most recent events, acting on a brain enfeebled or exhausted, made no vivid or forcible impression, and are, therefore, difficult of reproduction.

It sometimes occurs, that an insignificant object or event spontaneously recals to the mind objects or events which were long since forgotten, and which we have perhaps many times endeavoured to recal, but without success. The long-forgotten idea seems to arise without any cause, and in a spontaneous manner — in fact, involuntarily — though a long course of laborious thinking had not enabled us to recal it.

This is another proof, that the reproduction of ideas is independent of Memory. Were it otherwise, the idea would have been more or less retained according to the state of the Memory; but there would be no reason why it should fail, notwithstanding the effort made, and suddenly re-appear against our will, and without our assistance.

The reason of this phenomenon is the accidental appearance of an idea in some connection (analogous or opposite) with it, or of one which was previously present at the same time, or immediately succeeded in the mind. The effects of an evil conscience and of remorse furnish a striking illustration. It generally happens, that the impression made upon the mind by the commission of a heinous crime is stronger than that made by the performance of a good action; so strong in the case of the crime, that it is recalled every moment, or remains with such force in the consciousness as to weaken and almost expel all other ideas. And as in the case of very heinous crimes, so in a secondary degree, with reference to those of a less grave character. And this is the reason why we so often find ourselves unable to forget matters which we would never recal to our minds, and the memory of which we would very willingly get rid of, if it depended on our own choice to do so.

The obvious consequence of this is, that the surest and most effectual way to ensure an easy and accurate reproduction of ideas is to deal with the first impression; that is to say, to impart to it strength and vivacity. If this be done, the process of reproduction will accomplish itself with little or no effort. Now experience teaches us, that it is quite in our own power to greatly strengthen the original impressions. One of the most familiar modes, and one of those most in use, is attention. It need scarcely be remarked, that if attention has been paid to any object or subject, the mind will receive a more powerful original impression than if we had been absent or inattentive.

ASSOCIATION OF IDEAS. *a*. ANALOGOUS OR OPPOSITE.

The consideration next arises as to the most effectual means of forcing or fixing our attention, so as to produce a vivid and strong impression. Such means will be found to consist in COMPARISON.

With respect to comparison itself, a few explanatory remarks may be useful. We can only compare those ideas with one another which have some connexion, that is to say, analogous or opposite ideas (*vide* pp. 76, 77). When we thus compare two ideas, we search out and place side by side the qualities which they possess in common, and those on the other hand, by which they are distinguished from each other. Now this operation involves an effort of the mind, and produces an attention which inevitably strengthens the impression. And if at any subsequent period either one of the two ideas which have thus been compared and analysed presents itself to the mind, it will recal the other immediately and distinctly.

From this it follows, that if there be two ideas which have any relation or analogy with each other, and which it is desired to retain in the mind, it is only necessary to compare them. The attention required by this act of comparison is sufficient to ensure their mutual and almost simultaneous reproduction; inasmuch as when one presents itself it will recal the other.

Now, if there be a series of such analogous or opposite ideas, which it is desired to retain by heart, the rule just described still holds good, and the task will be found easy if set about with care and deliberation. We shall here merely compare the first idea with the second, the second with the third, and so on, no more than two ideas, however, being taken up at the same time, without paying any attention to the preceding or the succeeding ideas. This rule must be rigidly attended to, in order to avoid confusion and perplexity. By this means the operation will always continue simple; there will be always two ideas, and only two, to compare at one and the same time, notwithstanding the length and number of the whole series. The reproduction of the whole is, therefore, the more certain; while, at the same time, the first idea will recal but the second, the second but the third, the third only the fourth, and so on in the consecutive series throughout. Thus none will fail, and the ideas will occur in order whenever it is desired to recal them.

EXAMPLE.

As an example and practical illustration of the foregoing remarks, and a test of the mode of mental exercise suggested, we may compare the following ideas, but we must take care to confine our attention, from step to step, to the two ideas which we have to compare, without paying attention at the time either to those which precede or those which follow them.

England	navigation
navigation . . .	steam
steam	railway
railway	telegraph
telegraph . . .	electricity
electricity . . .	thunder
thunder	storm
storm	blow
blow	windpipe

windpipe	pipe
pipe	music
music	harmony
harmony	alliance
alliance	peace
peace	tranquillity
tranquillity	silence
silence	meditation
meditation	faith
faith	honesty
honesty	merchant
merchant	India
India	hot
hot	summer
summer	vegetation
vegetation	rock
rock	mountain
mountain	Switzerland
Switzerland	travel.

Here, then, is a chain of ideas to be associated link by link so as to be capable of being recalled to the mind whenever it is desired to do so. Now, if we have taken care, in going through the list, always to compare only two ideas together, or at the same time, without for the moment paying any attention to the rest, the reader is requested to try, whether he knows the list sufficiently to go through it in the above order. If he has paid sufficient attention to, and distinctly understood, the simple principle and method of practice which has been laid down, he will be able to do so. When the first word or idea is taken, it will immediately reproduce the second, the second will reproduce the third, and so on, with astonishing facility, through the series, which, with diligence and intelligence, may be extended to almost any length. But this is not all. Not only can all the ideas be recalled by going on consecutively from the beginning; but if any one of them be taken, all the others can be recalled when one has acquired adequate experience in this practical system of mnemonics. Again, if, instead of beginning with the first word, the student begins with the last, and thus proceeds inversely, he will find that he can remember and recite the words or ideas with equal facility. The cause of this facility and certainty of result is, that no more than two words have been compared in the mind at the same moment. And thus, as the first can only recal the second, and the second the third, and so on, none can fail. And again inversely, the thirtieth will recal the twenty-ninth, the twenty-ninth will recal the twenty-eighth, until all the ideas have been recalled.

We cannot too strongly insist on the importance of completely isolating each couple of ideas at the moment of comparing them, and confining our attention solely to them until the comparison be made throughout the series. An essential advantage of such isolation is, that it prevents obscurity and perplexity; the mind is not overloaded, because the difficulty of the task does not increase with the number of ideas, there never being more than two to compare at one and the same moment.

A very usual recommendation made by some writers on Mnemonics is to learn a series of words by heart, or commit them to Memory, by combining them together. But it should be considered, that a combination of this kind is effected, not by reflection, but by imagination, which is a very different thing. To take an example. This process of combining ideas by imagination, applied to the foregoing series, would take place in this way: England is the country of navigation, which is performed by the aid of steam; steam impels locomotives upon railways, which railways possess telegraphs, which telegraphs are worked by electricity, etc., etc. But this mode of combining ideas can never perfectly attain the desired result, because it contains the inherent defect of there being no intrinsic necessity or certainty that the primitive impression is strengthened ; whilst, on the contrary, in a simple isolated comparison of two ideas, there is a complete certainty of that effect being produced. Moreover, in this process of imaginary combination, the more ideas there are to be combined, the more difficult and confused becomes the task; which objection is not applicable to the system of combining, by reflection, two isolated ideas at a time before passing to any further comparison.

Association of Ideas. *b*. Neither Analogous nor Opposite.

When we desire to retain or to ensure the power of recalling two ideas which are neither analogous nor opposite, we find that they cannot be combined directly. But the object can be accomplished in an indirect manner.

This will be readily apparent. Each idea has some relation with a great number of other ideas. We must look amongst the ideas connected with those two which we desire to retain, for the purpose of finding points of comparison. For example: if we have to compare or combine *paper* and *youth*, we must look for one or more ideas which, by their insertion will establish a chain of relative or connecting ideas between the two which are to be combined. This process is, in some respects, an arbitrary one; and each particular person will establish his own chain of connecting links, according to his tastes or experience. Thus one will say that *paper* can be compared with *white colour*, this with *pure*, and pure with *youth*;

another will work out the combination in this way ;—paper—engine—force—youth; another will compare :—paper — book — imagination—youth. Thus the process of combination will vary with different persons; but in every case the comparison will be found easy; and such comparison once established, the idea of *paper* will, by means of either of those processes of thought so gone through, always recal that of *youth*. There are different ideas, which have been so often present together in the mind, that they recal each other instantly, *e.g.*, *steam* and *boat*. In these cases no intermediate ideas are required.

By this means, a combination, sufficient to insure the power of recalling any two given ideas on one being presented to the mind, can always be obtained. It is, no doubt, desirable that the combination of two different ideas should be made by only one, but, at all events, by as few intermediate ideas as possible. Yet the number of these intermediate combining ideas does not materially prejudice the facility of their reproduction, which, indeed, often takes place with such rapidity, that we are scarcely conscious of the presence or nature of the intermediate idea, so quickly does it come upon us. This is especially the case with ideas which are familiar to us.

As an illustration of these remarks, let us suppose that we are to retain the following series of ideas:—

Garden, hair, watchman, philosophy, copper, cloth, workman, apple, eclipse, dream, coal, balloon, microscope, idleness, fountain, silk, coast, watch, snow; etc.

We can combine the ideas in this manner, viz:—

Garden, plant, hair of plant—*hair;* hair, bonnet, watchman;—*watchman*, wake, study—*philosophy;* philosophy, chemistry—*copper;* copper, cover—*cloth;* cloth, tailor—*workman;* workman, gardener, garden—*apple;* apple, earth or moon—*eclipse;* eclipse, dark, night—*dream;* dream, night-mare, suffocation—*coal;* coal, gas—*balloon;* balloon, distance — *microscope;* microscope, study, labour—*idleness;* idleness, hot, thirst—*fountain;* fountain, dying—*silk;* silk, China, sea—*coast;* coast, navigation, compass — *watch;* watch, Switzerland — *snow;* etc., etc.

Thus, by the exercise of ordinary ingenuity and attention (in itself a beneficial mental exercise), combinations can be effected to any extent.

APPLICATION OF THE ABOVE RULES.

The process of the mental operation just described for the reproduction of a series, or of several series of ideas, can be applied in every case, where any series of words are to be retained in the Memory; and the object can be accomplished, with certain differences of detail, according to different circumstances. For instance: in some cases it is necessary to know and retain a series of words in precisely the same order in which they are given; in other cases, the order of the words is not of essential importance.

In natural history, where there are particular and distinct classifications of animals, plants, and other objects, it is necessary to observe the order of the words as given; but there are many cases in which it is not so necessary.

In cases of the latter kind, what we have to do is, to arrange the ideas ourselves, so as always to combine and take together those ideas which have any relation to each other, and which, consequently, can be compared directly.

To make this remark clear, it will be advisable to look over any ordinary grammar—the French grammar, for instance. In the grammar, under a general rule, we often find a series of words forming an exception to the rule, and which it is required to retain in the Memory. Here it is, of course, essential to know all the words forming the exception; but the *order* in which they are given, is of no importance.

Sometimes the exceptional words, or deviations from the rule, are arranged in verses; sometimes in alphabetical order; these arrangements being adopted for the purpose of aiding their retention by the memory.

Now, if instead of adopting the metrical or alphabetical plan, we arrange the series so as to call in reflection, *i.e.*, so as to take together the words or ideas which have any natural relation, it will be found that they will become perfectly familiar, and that the mind will retain them after only one or two attentive perusals.

The French irregular verbs, for instance, with their English significations, are given in the French grammar as follow:—

acquerir, *to acquire.*
aller, *to go.*
s'en aller, *to go away.*
s'asseoir, *to sit down.*
battre, *to beat.*
boire, *to drink.*
bouillir, *to boil.*
conclure, *to conclude.*
confire, *to pickle.*
coudre, *to sew.*
courir, *to run.*
croire, *to believe.*
ceuillir, *to gather.*
dire, *to say.*
écrire, *to write.*
envoyer, *to send.*
fuir, *to shun.*
haïr, *to hate.*
lire, *to read.*
mettre, *to put.*
moudre, *to grind.*
mourir, *to die.*
mouvoir, *to move.*
naître, *to be born.*
ouvrir, *to open.*
plaire, *to please.*
pouvoir, *to be able.*
prendre, *to take.*
revêtir, *to bestow.*
résoudre, *to dissolve.*
rire, *to laugh.*
rompre, *to break.*

savoir, *to know.*
suivre, *to follow.*
traire, *to milk.*
tressaillir, *to startle.*
vaincre, *to vanquish.*
valloir, *to be worth.*
vivre, *to live.*
voir, *to see.*
vouloir, *to be willing.*

Now the object of the scholar, in reference to the above words, is to be able always to recognise them as exceptions to the general rule, and to do this without reference to the order in which they occur. For this purpose, we have but to select sets of two words bearing analogy with each other, and to compare, viz.:—

sew	with	sit down
sit down	„	move
move	„	go
go	„	go away
go away	„	send
send	„	follow
follow	„	run
run	„	shun
shun	„	break
break	„	open

open	with	put
put	,,	bestow
bestow	,,	take
take	,,	acquire
acquire	,,	vanquish
vanquish	,,	beat
beat	,,	startle
startle	,,	die
die	,,	live
live	,,	be born
be born	,,	laugh
laugh	,,	please
please	,,	hate
hate	,,	say (calumny)
say	,,	read
read	,,	write
write	,,	see
see	,,	be able
be able	,,	know
know	,,	conclude
conclude	,,	be willing
be willing	,,	believe
believe	,,	be worth
be worth	,,	gather
gather	,,	drink
drink	,,	milk

milk	with	boil
boil	„	pickle
pickle	„	dissolve
dissolve	„	grind

Now if this series of words be studied in the manner which we have recommended, and of which the list last given furnishes an example, namely, by comparing, or bringing before the mind at the same time, only two words, and these the ones which have a definite affinity, one or two attentive perusals will suffice to fix them in the mind for ever. But if an attempt is made to learn such a series by heart in the ordinary mode, that is to say, by repeating it over and over, without any reference to analogy, until by such repetition it remains in the mind, not only will vastly longer time be expended in the task, but the great probability is, that the whole of them will never be known perfectly, for there is no principle of connection. And should occasion arise to make use of any one of the words, it will often be necessary to repeat the whole list in order to ascertain whether the particular word required be amongst the exceptions. This is a great difficulty and discouragement to students. But if the task of retaining or committing the words to the mind has been effected in the manner indicated in the examples, not only is their reproduction or recall at any future time rendered more certain, but on any one of the words or ideas occurring, it will immediately recal the others; and there can be no doubt or uncertainty; for if a given word is not comprised in a series (as of the exceptional words just cited), it is at once known that it is not amenable to the observations which apply to that series; for instance, in the particular example given, that it does not form one of the exceptions to the general rule.

It is here presumed that the meaning of the French words is known, or, in other words, that they are ideas available to the reader. Words belonging to foreign languages not known to us, or, indeed, any words of which we do not know the meaning, are of course no more than mere sounds, so far as we are concerned. This branch of the subject will be treated at some length on another occasion.

If a series of words has to be retained in the order in which they are presented, that is to say, if we cannot group together those words which have a connection, then we have only to compare the first with the second, the second with the third, without any further regard to the first, and so on. The comparison will be made directly, where any connection exists, indirectly where different ideas are given, according to the above rules.

CONCLUSION.

Here we have only been able to give the principles, which seem to us the sole scientific, and therefore the sole true basis of a method for facilitating the process of learning by heart. The practical application of which it is capable we explain in oral lectures. To enable our readers to judge of the success which has attended the practical application of these principles, we venture to direct their attention to the programme of the lectures, and to some of the published opinions of competent men, and of the foreign and English press hereto annexed.

One of the most efficient results of these simple psychological principles is obtained by their application to the study of foreign languages.

This important matter will be the subject of a separate publication; but the leading ideas of it will be found in an extract from an official report of a lecture which we delivered before the International Statistical Congress, held in London in July, 1860. See p. 125.

PROGRAMME

OF

Lectures & Demonstrations on Memory,

BY

DR. EDWARD PICK,

ALL the methods hitherto obtaining, which have for their object to facilitate *Learning by heart,* have possessed the inherent difficulty of presenting an array of rules more difficult to overcome than the subject-matter which they aim at mastering. Dr. PICK, having made Psychology his special study, has thereupon founded and evoked a helping agent at once simple and natural, and capable of being brought instantly into active operation.

This method has been amply tested by the leading men and public organs of opinion in France and Germany, and recognised as thoroughly available, as the subjoined notices sufficiently testify. In a single lecture, of one hour's duration, Dr. PICK will afford proofs not only of what he is enabled to accomplish by means of his method, but will enable his auditors to achieve the most surprising feats of memory.

To afford the means of appreciating the results of his system, the Professor submits the following tests:—

1st. Upon a number, composed of a hundred units or more, being dictated, the Professor will reproduce the same from memory, beginning from right to left or left to right, repeating them either in groups of three, or continuously.

For example: Suppose the following to be given:—

1	2	3	4	5	
576,	349,	876,	543,	946,	etc., etc.

Required to know the second figure in group 5?—*Answer*. 4.

Next, the units composing group 2?—*A*. 349.

Again, To what group do the units 543 belong?—*A*. To group 4.

2nd. The Professor will repeat a given series of proper names, of numbers, or other designations, according to the order which shall have been indicated, singly or in groups.

3rd. A hundred tablets, containing the solution of a great number of difficult points relating to various sciences, will be distributed amongst the public, in order that questions may be addressed to the Professor thereon, and a means be afforded of ascertaining the readiness with which answers will be returned. The following is a specimen of the subjects treated: the specific gravities of more than a hundred substances, with five decimals; the superficies and population of the principal countries: the population of more than three hundred towns; the height of three hundred mountains; the titles of the Pandects and of different codes; the chapters of the Old and New Testaments; the date of the birth and death of more than three hundred celebrated men; the dates of battles, of treaties of peace, and the most remarkable facts of universal history; the number of stars in the several constellations; the diameters of the planets; the estimate of the product of the different taxes, etc., etc.

4th. *The demonstration and immediate application of the principle whereon is based the system.*

5th. As proof final, the Professor will recite the number which shall have been dictated at the opening of the lecture.

N.B.—The entire system to be developed in a course of four or five lectures; during which, besides the general application afforded, the special adaptability of the method to learning by heart words either isolated or combined in a passage of prose or poetry; to the study of Natural History, Geography, Statistics, History, Chemistry and Foreign Languages, will be fully shewn.

The Lectures delivered in French, German, or English.

SYLLABUS OF THE ABOVE COURSE.

FIRST LECTURE.—The Fundamental Principles of the System; Association of Ideas; Application of the System to a Series of Words with or without Connection.

SECOND LECTURE.—Application of the System to the permanent Remembrance of Numbers and Statistics generally.

THIRD LECTURE.—Application of the System to the Study of the Holy Scriptures, History and Chronology, Chemistry, and Jurisprudence.

FOURTH LECTURE.—Application of the System to Foreign Languages, Proper Names, Geography, Botany, Geology, and Mineralogy.

FIFTH LECTURE.—Application to the Study of Languages, and to the Retention of Sermons, Lectures, Prose, Poetry, &c.; General Application of the System, and the Audience tested to prove their Proficiency in it, and the Facility with which they have made themselves Masters of it.

OPINIONS EXTRACTED FROM FRENCH AND GERMAN NEWSPAPERS.

Journal des Débats, 24th January, 1854.

This method has been examined by a Special Commission appointed by the Minister of Public Education; and the report of this Commission composed of Inspectors-General of Public Education, has been expressed in terms so favourable to M. Pick, that he has been allowed to demonstrate his method before the pupils of the Upper Normal School (College of Preceptors).

La Presse, 1st February, 1853.

By this method of M. Pick, one may become acquainted with, and possessed of for a life-time, a scientific instrument both apt and sure, which engraves on the memory, in a manner indelible, and without producing any sense of fatigue, things the most fleeting and abstract.

Thus, in the two preparatory lectures which he has already given, M. Pick, by means of his method, has succeeded in making his auditors retain, upon one hearing, a series of more than forty words. What results may not be looked for on the completion of the course?

La Presse, 15th March, 1853.

COURSE OF LECTURES ON MNEMONICS, HELD IN THE "ATHENÆUM," BY M. EDWARD PICK.

The interesting experiments in Mnemonics by

M. Edward Pick at the "Athenæum," should be attributed to a talent altogether exceptional — one of those extraordinary capacities to be met with at but rare intervals. The course just completed by this intelligent Professor has demonstrated, even to the most sceptical, that there is here involved, not merely a question of skill, but an actual method; and that every one, by a little time and labour, may, with absolute certainty, produce results similar to those by means of which the Professor at first took his auditory by surprise.

To attain such results argues the discovery of sound principles, at once simple and exact, and in perfect harmony with the intellectual nature of man; such, in fact, is the datum whereon the whole system of M. Pick is founded.

No recourse is had to those ponderous and defective processes which are more difficult to retain than the things they are meant to represent, and whose antiquated *memoria technica* proved burthensome even to its rare adepts; the process we have witnessed in practical application admits of being communicated in a few words, and put at once to practical proof, even by those unacquainted with this kind of knowledge. It is by the association of ideas, and the transformation of things void of meaning into things significant, that M. Pick has arrived at such happy results. By his system, isolated notions, or such as are of a nature too abstract to be retained, form individual links of that logical chain, by means whereof the most lengthy and dry nomenclatures are invested with rational life, and, consequently, with energy sufficient to produce living and durable impressions.

What tends singularly to prove how conformable this method is with the nature of things, is the fact, that when applied to ideas in themselves rigorous and positive, then it becomes most positive and rigorous. Thus it is for the study of figures, quite as infallible as mathematics; for by aid thereof one may learn in an instant, and retain during a life-time, long statistical calculations, entire chronologies, and numbers consisting of more than a hundred units.

Languages are not so rigorously rational as mathematics. Mnemonics afford, however, means of acquiring them, as sure and prompt as the nature of things permits; to facilitate the study, it is certain that, by the adoption of this system, the time and labour required to master them, by the ordinary process, is considerably diminished. In five lessons of one hour each, M. Pick has succeeded in developing the principle, and in securing to the whole body of students immediate application thereof, to the study of a series of words, figures, statistics, historical data, chronology, specific gravities, and to the words of foreign languages. Within so brief a space of time the result obtained is nothing less than marvellous, and justifies the saying of an eminently practical man: "By this process of M. Pick's the memory is energised, as though by a process of nature's own."—A. AZEVEDO.

Le Siècle, 9th March, 1853.

The auditory was literally wonder-struck at the facility with which this surprising Mnemonist retains and recites interminable series of figures and of proper names, of a character most grotesque. Still greater was the astonishment when it became evident that, by an experiment of the simplest kind, this method of M. Pick's renders every one, on completion of the five lessons, capable of rivalling the Professor himself. It was truly singular to witness a whole auditory reciting, after a single hearing, a long nomenclature, calculated to set at fault a memory naturally apt.

Gazette de Lyon, 21st January, 1851.

Judging the method merely by the general principles whereon it is based, and by applications at once made before us, we venture to assert that, over all other systems of mnemotechnica hitherto obtaining, this claims an incontestable superiority. To aid the memory, M. Pick has no recourse to mere external records or to strange formulæ, to retain which presupposes an extraordinary mental effort, and which, consequently, are of utility to those only who do not stand in need of them. His method is purely psychological, and seems to repose fundamentally upon the principle of the association of ideas.

Amongst the applications of his method made by M. Pick in our presence, that which seemed most worthy of remark is, beyond contradiction, the repeating, at first sight, a number composed of more than one hundred units. Bursts of applause repeatedly interrupted this experiment, which, though apparently the most brilliant, did not seem to us the most difficult.

M. Pick affirms, that there is not one of his pupils who will not be able to do as much after having followed his course, which is developed in five lectures of one hour each. L'ABBÉ CEDOZ.

L'Illustration, 7th January, 1854.

. . . M. Pick has consequently based his method upon the principle, that it is necessary to fortify the first impressions or ideas by mutually comparing them. To enlarge upon the special application of this method would require much time; suffice it to say, that its simplicity invests it with great value, with reference as well to the study of the classics as of the natural sciences.

The practical usefulness of this German Professor's method has been instrumental in obtaining for him the honour of teaching it in the first establishment of public education in France; viz., at the Upper Normal School. We hope that M. Pick will soon resume those public

lectures at the "Athénée" which, last season, met with such remarkable success.

M. Pick has demonstrated to my pupils, in a course of four lessons, a method which is peculiarly his own, the purpose whereof is to render the memory more energetic and retentive. This method is founded on the association of ideas, is of great simplicity, and applicable alike to figures, to names and to ideas, whether singly or combined, in a passage of prose or poetry, and to foreign languages. The experiment tried by the Professor in my establishment has been crowned with the most complete success.

My pupils have been enabled to learn and retain, with comparative facility, matters the very difficulty of which generally repels the most happy memory; for instance, the number of inhabitants of the principal countries in the world, specific gravities, and a sum total of seventy-five figures. One of the main advantages of the method is, to prevent anything being learned mechanically and superficially—to substitute, so to speak, reasoning for memory.

(Signed) HORTUS, Head Master.
PORAC, Head Master.
&c., &c.

PROFESSOR WEBER, *late Director of the Preceptors' College, in Bremen, one of the most celebrated writers on General Education, has expressed himself, in regard to this method, in the following terms*:—

I advance my conviction, based upon scientific principles, that though all the methods hitherto put forth have merely resulted in procuring a display of certain *tours de force*, and have simply enabled the inventor, after devoting a life-time to the acquisition of his peculiar *system*, to stimulate curiosity and wonder, but not to induce imitation, this method of Dr. Pick's is really practical, and presents the inestimable advantage of being true to nature, easy to be acquired, and applicable forthwith without any loss of time whatever. To every one who attended Dr. Pick's lecture, it was rendered manifest that, to strengthen the memory, and procure results seemingly impossible, one should recur to the aid of this method, and to no other. Its advantages in connection with education were at once made evident to all present; and I do not hesitate to express the opinion, that this method should be adopted in all public establishments of education.

(Signed) **Weber.**

TESTIMONIALS, AND OPINIONS EXTRACTED FROM THE ENGLISH PRESS.

Morning Post, 25th November, 1859.

University of Oxford.—Magdalen Hall.

On Wednesday evening, through the kindness of the principal of this hall, Dr. Edward Pick, late lecturer in the universities of Vienna, Leipsic, Heidelberg, and Paris, delivered in the dining-hall a lecture on memory, with practical demonstrations of his system for making it more energetic and retentive. The meeting was attended by the principal of Magdalen Hall and Miss Macbride, the Warden of Wadham and Mrs. Symons, Rev. H. Gandell, Rev. A. M. Christopher,and a large number of masters of arts, bachelors, and undergraduates. The Principal of Magdalen Hall introduced Dr. Pick to the meeting, and stated that that gentleman had acquired great celebrity as a lecturer on the best mode of improving and strengthening the memory at the universities of Vienna, Leipsic, Heidelberg, and more especially at Paris, where his system had been examined by a special commission appointed by the Minister of Public Education, and they had reported so favourably on its merits, that he was allowed to demonstrate it before the pupils of the Upper Normal School at the College of Preceptors.

Dr. Pick then addressed the meeting, and made some passing remarks on the nature of memory, its great value, and the facility with which it can be strengthened and made more retentive. He then adverted to the many ponderous and defective processes which had been employed to effect that end, and stated that having devoted considerable time and attention to the subject, he had arrived at the conclusion that it could only be attained by the application of sound and natural principles, at once simple and exact, and in perfect harmony with the intellectual nature of man. He stated that, upon those principles, his whole system was based, and that by the true association of ideas and the transformation of things void of meaning into things significant, results were obtained which at first sight appeared incredible, but were really practicable, and within the easy reach of the meanest capacity, besides being equally applicable to the study of chronology, natural history, statistics, chemistry, and languages. The professor then gave a practical illustration of his system as regards the retention of numbers, by inviting the company to mention a series of figures three in group. Thirty-three groups were named and chalked on the panels of the dining-hall, and as soon as this was done, Dr. Pick repeated from memory the whole of the figures, first forwards, then backwards, and challenged the company to name any group and he would tell them what numbers composed it. The professor was severely tested, but succeeded in every instance, and was rewarded with rounds of applause. With a view of showing how a true association of ideas assisted the memory, he applied a test to his audience, and asked them to associate the following ideas:—Memory or remembrance, history, wars, revolutions, gunpowder, explosions, steam, railways, celerity, electric telegraph, Atlantic cable, America, cotton industry, England, progress, civilisation, Chinese missionaries, Church, Reformation, Germany, Gúttenbérg, printing, and newspapers. Having only once enumerated these ideas, he requested the audience to repeat them in their consecutive order, then backwards, and afterwards indiscriminately. This was done successfully, and the audience appeared to be surprised with their own proficiency. The professor gave further illustrations of his system in facilitating the study of languages, and concluded by enumerating once more the thirty-three groups of figures which were given in the early part of the lecture, and guaranteed that every one who attended his course of four or five lectures should be enabled to do the same with equal facility.

The Principal of Magdalen Hall, on the part of the audience, thanked Dr. Pick for his very interesting lecture, and expressed the gratification it afforded him to witness the results of a system of energising the memory by a process which had the great recommendations of being simple, natural, and effective.

The Professor returned thanks; and announced that it was his intention to form a class, for the purpose of developing the details of his entire system, and of showing how applicable it was to every branch of study.

Westbourne College.

Dear Dr. Pick,—I beg to thank you for the interesting course of lectures which at my request you gave to my pupils in this place.

If your system were a mere artificial method of cramming the memory with facts and dates for special occasions, I should not care much about it; but as it demands thought, reflection and comparison, before it can be made available; and as it shews the pupil how by this means he can readily and permanently fix in his mind facts, dates and words; I look upon it as an important instrument in the aid of education.

I have the honour, etc.

Signed: C. MACKENZIE.

Stamford Hill Ladies' College.

MY DEAR SIR,—The impression afforded to me by your interesting lectures was just this, that instead of merely offering a mechanical aid for the retention of dates, names, etc., the intrinsic merit of your system, both to teacher and pupil, is the discipline it demands of the reflective powers. It thus appears to me of much wider application and importance than any mere verbal aid to the memory usually termed Mnemonics.

If you think the opinion of one who has the experience of forty years of teaching as the chief recommendation for the value of her judgment, etc.

Signed: J. W. HORNBLOWER.

Morning Post, 24th January, 1860.

UNIVERSITY INTELLIGENCE.—OXFORD.

DR. EDWARD PICK, late lecturer in the universities of Vienna, Leipsic, Heidelberg, and Paris, whose gratuitous lectures in Magdalen-hall and council-chamber on his new and natural system for improving and preserving the mental faculties and facilitating the acquirement of knowledge excited so much interest last term, is about to pay another visit to this university. Notwithstanding that his last visit was in the closing week of term, he gathered round him large and attentive audiences, and succeeded in forming an extensive class. This had the effect of exciting a thirst for a wider development of his system, and already classes are being formed for the purpose of testing its merits and capabilities.

Daily News, March 1*st,* 1860.

A singularly interesting lecture was given yesterday by Mr. Edward Pick, the mansion of Mr. Russell Gurney, at Kensington, being placed at the disposal of the Ladies' Sanitary Association for the occasion.

We have attended previous expositions of the "art" of memory, as it has been called, and have found them to be mere displays of clever empiricism, utterly destitute of theory or rule. At least, the exhibitors of a surprising retentiveness of mind have remained satisfied with the manifestation of their power, without attempting to account for it. This was not the case in the instance we have now to record. Dr. Pick's reputation is based on grounds which educated men are quick to respect. Near the close of last year he lectured at Oxford, with the express approval and co-operation of the Principal of Magdalen-hall. Indeed, the facilities of acquiring knowledge, especially technical knowledge, afforded by Dr. Pick's system, are so evident on a brief explanation, that no unprejudiced person could object to a theory which is, moreover, capable of being practically exemplified at every step of its development.

He gave a most convincing illustration, the effect of which was to make his audience astonish themselves, by an experiment performed among them. Dr. Pick fixed indelibly in the minds of his hearers, and in the space of a few minutes, that which very few, if any, of them could have recollected from the laboriously acquired lore of the school-room. *We say "indelibly," for this is, in truth, the chief recommendation of Dr. Pick's method, distinguishing it from a mere parrot-like system of teaching words.* The effort to fix in the memory unknown things by help of the known—new ideas by means of familiar ones—is a keystone in his constructive theory.

Morning Herald, March 1*st*, 1860.

LADIES' SANITARY ASSOCIATION.

Yesterday, Dr. Pick, late Lecturer in the Universities of Vienna, Leipsic, and Paris, delivered an interesting lecture, at the residence of Mr. Russell Gurney, Kensington Palace Gardens, on a new and natural method of Mnemonics, for strengthening the memory and mental faculties, and facilitating the acquirement of knowledge. The doctor's marvellous method and demonstrations for making the memory more retentive attracted a numerous audience; and his system, to which a detailed description only could do justice, will doubtless become extensively adopted in public schools generally, as an invaluable aid to the natural memory, and as a superseder of the artificial methods of *memoria technica.*

Spectator, March 3rd, 1860.

A lecture was delivered at the house of Mr. Russell Gurney, No. 8, Kensington Palace Gardens, on Wednesday afternoon, in aid of the funds of the Ladies' Sanitary Association. The lecturer was Dr. Edward Pick; the subject, "A New and Natural Method of Strengthening the Mental Faculties, and Facilitating the Acquirement of Knowledge." The room was filled with a cultivated and attentive audience, of which about two-thirds were ladies. The lecturer is a German, who has systematised a method of improving the memory, which, if practised in the education of the young, will be undoubtedly of great use to them, and if adopted at any period of life, will be beneficial. The lecture we heard on Wednesday explained the general principles on which the method was based, and exhibited some of its results. A course of five lectures on this system will be delivered by Dr. Pick, at the Beethoven Rooms, to a class now in course of formation. In these five lectures *the whole* system is taught; and we should imagine from what we heard on Wednesday, that it will be efficiently taught.

Daily Telegraph, May 8th, 1860.

WILLIS'S ROOMS.—Dr. Edward Pick, late lecturer at the chief of the German universities, delivered an introductory lecture yesterday, at these rooms on "Mnemonics." The chair was taken by Mr. Monckton Milnes, M.P., who introduced the lecturer in a speech highly eulogistic of his method. The chairman said that Dr. Pick carried testimonials from the most eminent persons of learning in Germany, and had in this country also, and in France, been recognised as the propounder of philosophical principles which must henceforth be admitted in all systems of education. Dr. Pick professed no extraordinary powers of memory, and was not intent upon surprising his audience by any display of such powers. He wished only to demonstrate the utility of his plan. This plan was based on the psychological principle that ideas enter the mind in combination, or otherwise are so faintly impressed that no effort of memory will suffice to recall them. In proof of this, he first recited a long series of figures, given at random by persons present, and chalked upon a board which was hidden from his sight; and then—which was far more productive of astonishment—enabled his hearers to perform a feat hardly less difficult, namely, the retention of some forty or fifty words in regular sequence. . . .

Daily News, May 8, 1860.

The meeting was presided over by Mr. Monckton Milnes, M.P., who, in introducing the lecturer, bore testimony to the philosophic principles upon which the system was based. He said that Dr. Pick did not possess or profess any extraordinary faculty of memory; but that, in the pursuit of psychological studies, he had been led to consider the best natural means of strengthening and vivifying those ideas which he desired to retain. His intention was not to show how much he himself could do, but how much he could enable others to do, by the same means. In this method of training the mind, reasoning was substituted for ordinary processes of recollection. Dr. Pick gave an outline of the plan upon which he was prepared to impart several branches of knowledge in a space of time much less than is generally required for their attainment. He said that there were some very young ladies who, on the conclusion of a recent course of demonstrative lectures given by him, were able to perform tasks quite as difficult as that which he had undertaken. In confirmation of his statement he asked his audience to apply the system then and there in an effort to retain large groups of words in a sequence not aided by any continuation of sense. This they accordingly did, to their own evident wonder, for the string of words easily remembered by all present, after hearing them only once, must have numbered between forty and fifty. It may be briefly said that Dr. Pick proceeds on a theory that objects are not singly recalled by any effort of the memory, but must have been originally impressed upon the mind by association with other objects. It is, therefore, a distinctive feature of his method of teaching, that ideas are systematically enforced at the time of their entering the minds of his pupils. His last course was attended by Count Apponyi, Mrs. Milner Gibson, the Countess of Kinnoul, Lady Rivers, Lady Darnley, Lady Monteagle, Lady Franklin, Lady Whitbread, Lady Forester, and other distinguished persons. The new course, we understand, will be honoured by the presence of Lady John Russell, and the Hon. Mrs. William Cowper. The principles exemplified by Dr. Pick will be applied specially to the acquirement of languages, to history, chemistry, jurisprudence, and all studies wherein memory performs a first part.

Morning Chronicle, May 9th, 1860.

DR. PICK'S LECTURE ON MEMORY.—Mr. R. Monckton Milnes, M.P., occupied the chair, and, in introducing the lecturer to the meeting, said that Dr. Pick was made known to him in Germany by several distinguished friends, and was celebrated as a gentleman of talent, ingenuity, and integrity. It was while engaged at Prague, in physiological studies, that Dr. Pick had first systematised the art of memory, and rendered that quality of mind independent of physical organisation. That art had exercised the minds of many distinguished men, all of whom had gone on the arbitrary principle. But the system of Dr. Pick was founded on natural principles—upon what might be called the gymnastics of the intellect, giving greater muscle to the mind.

Dr. Pick then delivered a singularly interesting lecture on memory, etc.

The lecture having been concluded, the Chairman expressed the gratification it had afforded him, and he had no doubt the whole audience, in witnessing the pleasingly successful results of such a simple and effective system of energising the memory.

Morning Chronicle, July 25th, 1860.

DR. E. PICK AND THE INTERNATIONAL STATISTICAL CONGRESS.—An instructive lecture on "Memory," with illustrations of a philosophical system, by which facts, images, ideas and numbers may be instantly and enduringly fixed in the mind, was given in the theatre of King's College by Dr. Edward Pick, of the University of Vienna, at the invitation of the Committee of the International Statistical Congress. At the close of the lecture which fully explained and substantiated the theory of Dr. Pick a vote of thanks was proposed by Alderman Salomons, M.P., and seconded by Mr. Freeland, M.P.

This having been cordially passed by the meeting, a second motion was unanimously carried, authorising the publication of the lecture in the official report of the congress.

Extract from an Official Report of the International Statistical Congress, held in London, July, 1860.

. . . The learned professor made some remarks on the application of these principles to the study of languages. The general way adopted for the study of a language is to begin with the alphabet, the reading, and the grammar, that is to say, to learn unknown details, unknown particulars of a thing equally unknown; whereas the easy and natural way would be, to start from known things, and to compare the unknown with it, as far as possible. He had for many years practised the application of this principle, and had obtained astonishing results. He gave first all those elements of the foreign languages which are to be found in our own language, the unaltered ones first, then the altered. In pursuing the laws by which the different languages have been formed out of others, and are progressing still, it was very easy to give to the pupils a great number of elements, not only of words, but of whole sentences, etc., which would be identical with or analogous to the words and phrases of his own language. Thus the pupil is introduced, in a very easy way, directly into the very life of the language he intends to learn, without any mechanical labour of the mind, more by comparing and reasoning. He soon gets accustomed to the changes the same roots undergo in analogous languages; and having in this way learned a small piece of prose by heart, he will find in this piece a great number of the rules of the grammar applied, consequently known to him without having been aware of it. So he goes always from the *known to* the unknown by comparison and reflection, and he very soon becomes master of the foreign language, without much trouble, and in a surer way than the usual one, because the association of analogous ideas, which is always going on, assured their reproduction for the future. The professor regretted his inability to explain in one single lecture all the applications that can be made of this principle of the true association of ideas.

Morning Chronicle, December 22nd, 1860.

An interesting course of lectures by Dr. E. Pick, on the development of memory, has just been brought to a close at the Middle School, Peckham. These lectures have been attended by a considerable number of adults resident in the district, as well as by the numerous pupils in the school; and the system taught by Dr. Pick has been practically tested by young and old, and afforded results as unexpected as they were pleasing. The plan of developing the memory has been applied in the course of the lectures to history, geography, statistics, and to the acquirement of the modern languages; and, in the latter case especially, the system has been found to be of considerable value. In his plan of aiding or developing the memory, Dr. Pick claims, and justly so, the credit of logically applying the principle of substituting reasoning for memory. It is an admitted psychological fact that no idea occurs to the mind singly, or without being called by some other idea or object. This joint action tends to strengthen the impression of the ideas and to strengthen the memory; and Dr. Pick in his system endeavours to apply it practically. As a proof of the efficiency of his system, the audience were enabled at the close of the course, without any trouble or effort, to remember long series of words, with or without any immediate connection with each other; lists of the irregular French verbs, long lists of figures, statistics of the population and commerce of the principal countries of the world, historical dates connected with ancient, modern, and English history, to an extent which seemed to justify the opinion that a royal road to learning had at last been discovered. The application of the principle to the acquisition of modern languages appeared to be highly successful, and the rapid strides made from the known to the unknown were such as to induce perfect confidence in the statement of the learned professor, that under this system a greater knowledge of the French and German languages could be acquired in six months, than during as many years under the old-fashioned modes of teaching.